

FOCUS

A Strategic Approach to Managing the Oceans

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The U.S. government sets strategic goals for ocean protection, management, and research.

Over the last 50 years, scientists and policy makers have developed a much more profound understanding of the way in which oceans, as complex and dynamic systems, influence many facets of daily life for people around the globe. That broadening understanding—among government officials and the publics they serve—has led to new efforts to develop comprehensive policies on the use and protection of the waters that comprise more than 70 percent of our planet's surface. Two current reports by distinguished panels in the United States—representing both government and the private sector—provide thoughtful and considered recommendations on appropriate next steps.

This is a time of great promise for humanity to act upon our ever-growing understanding of the oceans and their connection to the land, the climate, and all of life. As we examine these valuable new studies, we shall have a unique opportunity to reevaluate the way we do business.

The National Oceanic and Atmospheric Administration (NOAA), over the past three years, has aggressively retooled the way in which it carries out oceans research and policy development as it has prepared a new strategic plan.

NOAA's Strategic Plan – Four Strategic Goals

Making effective and sound oceans policy begins with a strong strategic plan that sets clear and identifiable goals and lays out a path to accomplish them. NOAA, with much input from employees and constituents, has worked hard to develop a plan that encompasses our diverse portfolio of responsibilities.

The plan is focused on four strategic goals:

1. Ecosystems: To better protect, restore, and manage the use of coastal and ocean resources through ecosystem approaches to management.
2. Climate: To better understand climate variability and enhance society's ability to plan and respond.
3. Weather and Water: To improve accuracy and timeliness of weather predictions.
4. Commerce and Transportation: To support and boost the nation's commerce with information for safe, efficient, and environmentally sound transportation.

These goals represent the backbone of all of NOAA's mandates and initiatives. We are aligning our budget structure and tracking our performance in the context of these goals. While they all draw upon nearly every sector at NOAA, they all also have a significant impact on oceans policy.

Ecosystem Approach to Management

It is hard to understate the importance of coastal communities given that they are the most developed and the fastest-growing areas in our country. Coastal and marine waters alone support more than 28 million jobs and generate more than \$54 billion annually. These areas are a precious resource, and it is easy to see why it is so important that we protect, restore, and manage these areas.

Managing coastal areas cannot happen in a vacuum,

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which is why ecosystem-based management is a top priority at NOAA. An ecosystem approach to management is founded in the fact that all ecosystems and their various parts are closely interrelated and that actions in one will have impacts upon the rest.

One example of how ecosystem management affects oceans policy is the White Water to Blue Water (WW2BW) initiative, which is based on recognition that you cannot protect the oceans without effectively managing influences upstream. The United States recently announced a partnership with key interests in the wider Caribbean region as part of the WW2BW initiative, and we hope the work done there will serve as a model worldwide.

When the goals of WW2BW are realized, we hope to have increased the number of coastal and marine ecosystems maintained at a healthy, sustainable level, as well as the social and economic value of the marine environment and resources, and the number of hectares and stream-kilometers restored for coastal and ocean species.

Climate

Of all the great mysteries the oceans hold in their depths, their effect on climate may be the least understood. For example, we are just beginning to understand the critical role the oceans play in the formation of the El Niño and La Niña atmospheric circulation systems that influence weather and moisture patterns around the world. Only in the last couple of decades have we developed tools and technology that allow us to predict the formation and movement of these systems with their capacity for enormous destruction due to withering drought or crashing storms. In 1997 and 1998 El Niño caused \$25 billion in economic damages, but as our understanding grows, policy makers and business planners are able to make adjustments to mitigate the loss.

Predicting and monitoring El Niño/La Niña are possible because of investments in technology that allow scientists to monitor ocean temperatures.

Continued investment will not only further understanding of short-term climate variability, but will also help answer more long-term questions such as the reasons behind global climate change. It is widely believed that the oceans have a significant impact on climate change, but many questions remain.

Weather and Water

Everyone in the country reaps the benefits when NOAA improves its weather forecasting ability, but those in coastal regions literally stake their lives and livelihoods on our ability to predict the actions of severe storms and hurricanes. Severe weather in the United States takes dozens of lives per year and can cost more than \$11 billion.

NOAA's significant investment in technology to improve our ability to forecast hurricanes is directly impacting those living in coastal regions. For example, hurricane paths can now be forecast five days into the future with the same accuracy as three-day forecasts 10 years ago.

As we move forward, we want to continue improving this technology and the computer models that provide those forecasts. Key also will be educating a new generation of meteorologists and forecasters in the latest technology and techniques. Finally, watches and warnings do no one any good if they are not effectively communicated to those who need them. We will continue working to improve communication so that people are aware of forecasts and understand how vitally important they can be to safety and well-being.

Commerce and Transportation

Given that more than 95 percent of the tonnage of our foreign trade moves through the oceans and our ports, it is clear that they play a major role in our economy.

NOAA's fourth strategic goal is to support the nation's commerce with information for safe, efficient, and

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environmentally sound transportation. This goal encompasses all forms of transportation, including air and surface, but ocean travel and related commerce offer a particular set of challenges.

Obviously, improving weather forecasts make sea travel much safer. Also important, however, is ensuring that port operations and development proceed efficiently and in an environmentally sound manner. In the end, reducing the risk of marine accidents and oil spills, better search and rescue capabilities, and other efficiencies from improved navigation and coastal and ocean information and services could be worth \$300 million annually to the nation's coasts.

Earth Observation

The four strategic goals cut across and define all the work done at NOAA. One issue, however, threads through all four of these goals. There is hardly a scientific, economic, or social category that does not involve Earth observations in some way. This central issue will play a large role in oceans policy for a long time to come.

I strongly believe we have reached a time for an "earth science renaissance," a new era in which human ingenuity must be applied to developing a deeper understanding of the complex systems of planet Earth. That understanding begins with observations. Every day we reap the manifold benefits of satellite, aircraft, and ocean and ground-based measurements that document environmental changes across the globe. These measurements are essential to every nation to assist in such essential tasks as monitoring crops, exploring the oceans, improving weather forecasts, managing fisheries, or assessing disasters.

However, collectively, we can and we must do much more. The forces of social change and global development present a number of serious issues for the world's leaders, decision makers, and inter-

national societies. We are facing a future that requires advancing our existing systems to the next level of Earth observation; that is, to build a system of systems that will give us the tools we need to "take the pulse of the planet."

Support for Ocean Science and Technology

Around the world, there is considerable support to maintain these technological advancements in ocean science, but it is important for the ocean community to promote these initiatives to our supporters and educate America and the world on the value of these advancements.

Making this happen will require strengthening intergovernmental, academic, and industry partnerships to leverage that support in order to move forward in the field of ocean science.

It is essential that people understand and support the full value of ocean science: how it impacts their daily lives; how it adds to our understanding of the interrelationship between the oceans and atmosphere, indeed the entire Earth. Investing in an education effort to communicate these benefits will further the cause of ocean science and can eventually allow us to give something back to the oceans—the oceans that have done so much for humankind.

Further information about NOAA's ocean-related programs is available at <http://www.noaa.gov/ocean.html> and <http://oceanservice.noaa.gov/>.

Undersecretary Conrad Lautenbacher is a retired admiral of the U.S. Navy with more than 30 years of service. Upon retirement, he became president of the Consortium for Oceanographic Research and Education (CORE). President Bush appointed him to head NOAA in 2001.